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Aboriginal Australian Material Culture: Causative Factors in its Composition.[1]

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A. Introduction.

The simplicity of the material culture of the Australian aborigines has often been contrasted with their complex social organization and totemism, and with the intensity and richness of their religious life. An analysis of the factors entering into the composition of the material culture of such a people, who form a distinct and primitive physical type, is of unusual interest because their achievements occupy an important position in the history and development of culture. Further, such an analysis throws a great deal of light upon that ubiquitous problem of the ethnologist, independent invention versus diffusion. Although one hesitates to write upon a controversial subject, its clarification will serve a valuable purpose on account of existing misconception. Moreover, it is important for the functional anthropologist to know which are the foreign elements in any local culture that is being studied, while psychological interpretations of various concepts must also take into consideration those beliefs and customs which are not indigenous.

The aborigines have adhered to their nomadic mode of life, even though, in Cape York and along the northern Australian coast, they have had prolonged contact with the gardening Papuans and Malays. This conservatism is to be explained partly by the non-occurrence, or non-introduction, of the staple food plants—taro, sweet potato, coconuts, bananas and sago—of the Pacific Islanders; also, because a great portion of the continent is arid and entirely unsuitable for primitive cultivation. We

[1] Presidential address to the Anthropological Society of New South Wales, 1939.

have to bear in mind, of course, that nature provides a bountiful harvest of seed foods throughout Australia, more especially in the interior, which are reaped, purified if necessary, pounded, winnowed, mixed into a dough, and baked. Thus, though seeds and roots are not sown, the natural crop is effectively utilized. In addition, the primitive marsupials and monotremes of Australia are not adaptable to domestication. It might be concluded, therefore, that the culture, historical background and conservatism of the aborigines are not conducive to a change to a settled gardening life.

The varying environments of nomadic peoples throughout the world demonstrate that this mode of life, though exacting, is adaptable to the needs of man. It forces its adherents to understand thoroughly the enviroment in which they live to a far greater degree than pastoralists or agriculturalists. The nomadic Australian knows how every creature, plant and tree of the bush may be usefully employed ; in the dry interior, where the struggle for existence is more difficult and bitter than in the fertile areas, every available supply of moisture, whether it be a waterhole, spring, dew on the grass and bushes, or trees which conserve moisture in their roots, must be known to make life possible during the dry seasons.

Despite these deterrent factors, the material culture of the aborigines has not remained static, and several steps forward of major importance have been made at different periods of their history. The aborigines have experimented with many aspects of their culture, and in the adaptation to their environment have brought into play a great deal of ingenuity, resource and skill ; thus, according to Davidson,[11] they have invented as many as eight types of domestic containers.

The material culture of Australia forms a perfect study for the ethnologist because it belongs to a people who have inhabited a comparatively isolated continent for a long period. Although it has often been stated that there is a noticeable homogeneity in the material culture throughout the continent, even a superficial study reveals that the component traits are regionally varied, and that external influences are present ; it is possible, also, to distinguish areas demarcated by secondary local characters ; nevertheless, it does not allow of a simple division into " culture areas or complexes," as, for example, in Melanesia, where there are clear cut distinctions between regions and groups of islands. Thus, a review of the differentiations and their various causative factors in Australia at once brings to light an involved problem.

B. Previous Analyses.

The efforts of earlier writers to elucidate this problem were nullified by their lack of detailed distributional evidence and of archæological data, both of which are serious deficiencies to-day, although not to the same extent.

Graebner[26] concluded that traits present in both Australia and Melanesia belonged to several strata of culture, and he claimed that " East Papuan elements have penetrated the whole of the Australian continent as far as the extreme west, and unmixed remnants of West Papuan culture are found to the north and south of this zone permeated by East Papuan culture. In Australia the West Papuan culture is the older, and it has been forced back by the spread of the East Papuan culture from the east, where it is dominant and fairly pure here and there." He also linked certain Australian traits with the Negritos, Melanesians and Polynesians. Rivers,[63] too, expressed the close relationship between the development of culture in these regions. Hamlyn-Harris,[32] [33] Thorpe,[80] Haddon,[5] and others have written on Australia-New Guinea relationships, and have given limited lists of traits. Davidson[8–13] in recent years has applied a new method of approach in his geographical distribution studies of various traits, as a result of which he has convincingly demonstrated the importance of diffusion from New Guinea into Australia.

Sir Baldwin Spencer[74] claimed that " the Australian aborigine has developed all the cultures necessary to his well-being, considering his wants and the material available, unaided from any other source." This idea was supported by Kenyon, Mahony and Mann[41] in their statements that " any local cultures can be shown to be due to local causes," and " any attempt to compare his (Australian aboriginal) cultural period with those of the old world, with races subjected to periodic invasions of different cultures or in contact with higher or lower civilizations will lead to error;" these conclusions are based principally upon the occurrence of purely local industries of chipped stone flakes, and to this factor of local causation the explanation of the composition of the whole of the material culture is wrongly attributed.

Porteus ([59], p. 250) claimed that, because of the homogeneity of Australian aboriginal culture, we must regard the interior of the continent as the cultural centre. Frobenius[25] suggested that the introduction of Polynesian and other traits in Australia was due to natives from canoes which had been blown out of their course on to the Australian coast.

The principal aim of these studies is to define the material culture of the aborigines when they arrived on the continent. This can be done only by distinguishing the introduced elements. In this paper I shall discuss the factors which I consider have brought the material culture to its present state of development, and define those traits which occur in the New Guinea-Australia region.

C. Causes of Local Variation.

Before looking outside Australia for the origin of a trait, we must consider carefully local variations and developments, a great number of which are due to environmental causes, such as changes in the flora and fauna, geographical and geological features. We must evaluate the close relationship between the different methods employed in the manufacture of objects and the variations produced on the one hand, with the materials used and local conditions on the other hand. Causes of local variation apply to specific traits only, and cannot be applied as general principles to the material culture as a whole.

When we consider the wide range of variations in the types of shields, spear-throwers, boomerangs, clubs, containers and practically every other item in the material culture, we naturally ask the question: why do they exist? I believe that the factors given in the following discussion are the main causes of local variation. I do not intend to deal exhaustively with the material culture, but will quote examples sufficient to demonstrate that these factors must be taken into consideration in the study of any trait in which its origin or development is discussed.

(1) *The Influence of Material.*

The flaking qualities of various local stones employed by the aborigines for making stone implements have had an important bearing on their form, as Towle[84] has shown for New South Wales in regard to the scrapers and some conventionalized flake implements. This conclusion is supported by the fact that local stones with uncontrollable fracture are often ignored, while some types of stone are traded long distances for making flake tools, indicating that the aborigines, in certain instances, selected suitable material to produce the type of implements they have in mind to make. Actually, the aborigines, because of barter, know that they have a wide choice of materials, and need not be bound by those in their own territory.

The influence of material on the form of stone, wood, vegetable fibre and other materials is negatived by the employment of a technique which enables the workman to control the material he uses (though not all materials can be so controlled). Thus we find that the flaking technique and the stone used for making flake implements are very closely allied, and only a detailed study[2] of Australian stone implements will enable us to define the line of demarcation between the influence of material and technique with respect to certain conventionalized flake implements. Where material is the controlling factor, a local industry is established.

Two grindstone quarries may here be mentioned. One in the Toko Ranges produced stones which were traded over a wide area of central and western Queensland (Roth,[67] sect. 154); likewise, grindstones from the Flinders Ranges, South Australia, were distributed throughout an extensive region by trade; consequently, the types in these areas tend to become standardized.

Among other traits, some of the variations of shield types [Fig. 1] are due, to a certain extent, to the influence of material. The nature of the timber is of importance. Along the coast of New South Wales the shields were made by cutting out a section of the bark of a mangrove tree; consequently, they are thin and concavo-convex in form. The form of the slender parrying shields of south-east Australia would seem to be due both to their function and to the fact that they are made of hardwood; their weight must be kept down because of its effect upon their manipulation in combat. The softwood *Gulmari* shields of Queensland and central Australia are much larger than the parrying shields, one reason being that the light corkwood of which they are made does not hinder the warrior's movements; it might be noted, too, that the distribution of the corkwood tree (*Erythrina vespertilio*) is within that of the shield, the latter being bartered extensively. Finally, the shape of the large *pi-kan* shields of north-east Queensland is closely related to that of the curved root-flanges of the fig tree (*Ficus stephanocarpa*) from which they are cut; thus, many of these shields are concave on one edge and convex on the other. It can not, however, be claimed that the form of the various Australian shields is due entirely to the materials used: it depends to some extent upon the mode of use, the traditional pattern, and diffusion, but the regional variations in

[2] Upon which the author is engaged.

the form of one basic type of shield, for example the type with the handle cut in the solid, may be said to be greatly influenced by the material.[3]

Ornaments form an excellent example of the influence of local materials. In the coastal area shells, fish spines and vertebræ are most commonly used, and in the interior feathers, twine, animal teeth and fur. The form of many ornaments is due to cultural inheritance and introduced ideas.

An interesting contrast in the use of local resources is provided by the ceremonial grounds in New South Wales. In the Sydney district the large expanses of sandstone were engraved with sacred figures and formed the scene of tribal ceremonies, but in the interior of the State the figures were made in the earth or sand in places where rock surfaces were not available ; in some sites the arrangement of stones served the purpose.

The above examples will serve to demonstrate the close relationship borne by the material culture to the natural resources and local conditions. In the small island communities of the Pacific this factor is a dominating one because of the limitations imposed upon the inhabitants by their environment. An instance that might be quoted is that of the substitution of flax skirts and cloaks by the Maori for bark cloth, necessitated by reason of the failure of the paper-bark tree to grow in New Zealand. In a continent like Australia, however, its effect is lessened on account of a wider selection of materials available.

(2) *Limitation of the manufacture of a trait to one locality or group of tribes even though the raw materials are available in localities to which it is traded.*

It is obvious that, although a local group is able to make many of its weapons, implements, utensils, ornaments and other objects from materials at hand within its territory, it cannot manufacture some articles owing to lack of materials. In this case, either the raw material, the article in process of manufacture, or the finished object is (*a*) obtained by trade, (*b*) dispensed with, or (*c*) a substitute is found. Where the material is available, the only reason for a group not making a trait would appear to be that its members lack the technical knowledge of the process. In central Australia, however, this is not the case, and an interesting relationship between the object and the culture-heroes prevailed. Spencer and Gillen ([75], pp. 586-7) state that in central Australia " it is a striking feature that men who live in particular

[3] Cultural influences may be present in Australian shield types. It is uncertain whether the detachable handle in south-east Australia, and the raised boss in north-east Queensland, are local or introduced.

districts are famous for making particular forms of implements and weapons, and that this is by no means wholly dependent upon the fact that suitable material for their construction is only to be found in the districts occupied by them. Thus the best *pitchi*, made of the bean-tree, are the work of the groups of natives who live out west of Alice Springs; the best shields . . . are those made away to the north, the best spear-throwers are made in the south-west, and the best spears in the north part of the Arunta tribe, in the Alice Springs district. The western men, for example, though they have the bean-tree and make *pitchi* out of it, get their shields by exchange from the north. The Alice Springs blacks in like exchange their spears for the boomerangs of the eastern tribes, and so on. Even in the old traditions we find reference to the excellence of the *pitchi* made by the western natives; in fact, according to tradition, one of the wandering ancestral groups named what is now called Mt. Sonder *Urachipma*, or the place of *pitchi*, because here they found an old bandicoot man engaged in making them. The tradition may at any rate be regarded as indicative that this distribution of work is of very old standing. It seems, generally speaking, to be independent of the existence in any particular locality of the material necessary for the manufacture of any particular article." The primary reason for this localization of industry in central Australia is that the *pitchi*, spear-throwers, etc., were first made or introduced by the culture-heroes in the respective localities; these sites have thus been sanctified as the proper sources from which to obtain supplies of the articles, which are endowed with the magical and supernatural powers of the culture heroes. This sanction is well illustrated by the widespread use of red ochre from the Parachilna site, South Australia (McCarthy,[48] Vol. X, No. 1, pp. 86-88, map 12).

The effect upon the material culture is that one type of object is used throughout a much more extensive region than its area of manufacture, and it tends to replace or modify local types in areas to which it is traded.

(3) *Local elaboration of a widespread trait.*

The local elaboration of a universal trait is typical of primitive culture. The finest example in Australia known to me is that of the " kopi " widow's cap (Etheridge[21]). Kopi, gypsum or pipeclay is used in many parts of the continent in burial ceremonies, when it is plastered over the whole or part of the body during the mourning period. Along the Darling River, among the Parkunji, north of Menindie, the widow fashioned in one act a very fine cap and wore it for some months; south of this

locality the woman sat at the grave of her departed husband and formed the cap gradually by additional layers of kopi until it became too heavy to support, when it was taken off and laid on the grave. This operation was repeated for the full mourning period of four or five weeks, with an average result of eight or ten caps (Kenyon, Mahony and Mann,[41] p. 466). Widow's caps were also worn on the lower Murray River (Etheridge[21]). In the Lake Eyre district the widow broke the cap at the feet of her new husband (Horne and Aiston,[38] p. 154).

Among the Aranda of central Australia, and to the west and south-west of this group, there is a local elaboration of the use of feathered headdresses and totemic insignia (*nurtunja* and *waninga*) (Spencer and Gillen[75] [76]). In New South Wales a notable elaboration of tree engraving took place (Etheridge[19]).

(4) *Invention of a distinct type of object or a change in design or form.*

The contribution of individual craftsmen to the material culture of Australia is manifested in a study of the variations of the basic types of articles. Davidson[11] concluded that eight types of domestic containers were invented by the aborigines. Distributional evidence indicates that the ideas introduced by individual workmen have been a most potent cause of variation in all other phases of the material culture. To the craftsmen we must attribute the creation of three main types of spear-throwers comprising numerous varieties, none of which occurs in the islands adjacent to Australia ; projecting apices on Murray River shields, and variations in shields with handle cut out of the solid ; numerous varieties of throwing and bulbous-headed clubs ; arrangements of spear barbs ; returning boomerang, and variations in shapes of boomerangs ; magical and ceremonial paraphernalia ; local varieties of coiled and twined baskets ; the arrangement of design elements into the endless variety of patterns which constitute a striking feature of aboriginal decorative art, and which Roth ([68], Bull. 15, p. 205) found to be localized in central Queensland.

(5) *Substitution.*

The spear-thrower [Fig. 2] also serves as an illustration of this factor. On the New South Wales coast its proximal end was enlarged for use as a paddle and as a hoe for digging up yams and roots ; in Cape York it is used for parrying spears (instead of a shield) and it has an enlarged shield-like panel in the middle ; in central Australia it is used for mixing ochres and

for holding blood during ceremonies, for which purpose it is broad and curved in the middle; finally, in many parts of the interior it is used as a chisel handle. Thus, as a substitute for another domestic article which would have to be carried, the spear-thrower serves many useful purposes without impairing its efficiency, and has been modified locally.

(6) *Diffusion and trade* [Figs. 7-8].

The great trading systems and networks of local exchange (McCarthy[48]) combined with the frequent gathering together of groups for ceremonies and other purposes provide a simple mechanism whereby new ideas diffused throughout Australia.

Indigenous inventions have spread over wide regions. Thus (*a*) the projecting apices on shields along the Murray River spread into the Yorke Peninsula, (*b*) the carving of trees diffused throughout New South Wales between the Darling River and the coast and north into southern Queensland, (*c*) the use of the hafted chisel spread widely in the interior of the continent, (*d*) the one-piece bark canoe and container spread along the Darling and Murray Rivers and their tributaries. Fluted and hooked boomerangs provide other instances (McCarthy,[48] Vol. X, No. 1, pp. 80-83, map 10).

Stone implements form an excellent example for discussion under this heading. Ground-edge axes [Pl. Z, Figs. 1-7] vary from very crudely chipped types and those made from pebbles to types most skilfully and symmetrically shaped by a superior chipping technique; others are beautifully finished off by hammer-dressing, and some by partial polishing. Again, there are grindstones and mortars shaped by flaking, and others by the later hammer-dressing technique. Thus the diffusion of new techniques has made possible the production of finer tools. Consider the intrusion of the hammer-dressed technique from north-eastern Australia into the interior of the continent, where it was employed for making stone axes, grindstones, etc., and in the rock engravings it apparently supplanted the punctured outline method. Most of these advanced techniques were introduced into Australia as part of a wider diffusion through Malaya and the Pacific Islands.

The principal result of diffusion and trade is to establish throughout wide areas new techniques and forms. Sometimes a local type is replaced or modified in the process. Thus the fluted boomerang was made in the upper Georgina River district, and as far east as the Kalkadoon tribe in

the Leichhardt-Selwyn Ranges, at the time of Roth's[67] investigations, and it had almost supplanted the ornate boomerangs made there. Further, ornate boomerangs were traded southward to the Lake Eyre tribes, where the incised designs they bore, especially the elongate-ellipse figures in chains, were copied and applied to the local sword boomerangs (Australian Museum specimens).

The employment of different techniques in different areas is closely allied with their diffusion and cannot be classed as a separate factor. In Australia, from north to south, north-eastward to south-westward, north-west to east and south-east, there is a succession of techniques separated spatially only by the length of time each has been diffusing, a process which has produced a striking dissimilarity in the material culture of neighbouring and widely separated areas. This point is shown clearly in the distribution of netting techniques (Davidson[8]) and of axe traits.

The question arises as to how many of the traits that have undergone local differentiation were brought into Australia by the aborigines? It could not be claimed that the boomerang, of which many local types exist, was introduced. On the other hand, twined baskets and bullroarers apparently were introduced, and there are many local types of them. Thus we are led to the conclusion that, although local variation of a trait is an important factor in the composition of the material culture, it cannot be accepted as proof that the trait belongs to the original culture of the Australians.

D. Areas of Local Variation.

[Fig. 4.]

Throughout the continent the variation of weapons, utensils, implements, art designs and other articles is regional. For these areas, differentiated merely by secondary characters, the terms "culture-area" and "culture-complex" are unsuitable because the whole of Australia must be regarded as a single culture-complex. In this section we are concerned with the grouping of traits within this continental complex. Those which are traded from one area of local variation across and into others, e.g. *pitjuri* in bags, shell breast ornaments, fluted and hooked boomerangs, will be treated as traits belonging to the area in which they originated, if this is known; some have replaced or modified other types, while others are additions to the culture of the areas into which they are bartered.

These areas, and their distinguishing traits, are as follows:

(1) Eastern Australia (New South Wales, eastern South Australia, Victoria, south-western Queensland).

Hardwood parrying shields.
Spindle type spear-thrower with peg cut out of solid.
Single piece bark canoes and containers.
Carved trees.
Coiled baskets and mats.
Concentric diamond motif set in field of chevrons, etc.
Incised work on wood.
Game nets.
Club types.

Sub-area (i) Coastal area of New South Wales.

Pleated bark canoes and containers.
Paddle type spear-thrower.
Plain boomerangs.
Shield with detached handle.
Cremation.
Outline rock engravings.
Elouera type flake industry.

Sub-area (ii) Central New South Wales.

Mound graves.
Centre of tree-carving cult.
Ground figures in initiation ceremonies on *Bora* grounds.
Grooved conical stones.

Sub-area (iii) Darling River valley, westward, to south-west Queensland.

Cylindro-conical stones.[4]
Kopi grave markers and widow's caps.
Hammer-dressed rock engravings.
Quartzite adzes and grooved axes.
Tula type flake industry, and associated hand-axes and cores.
Incised boomerangs.

[4] The cylindro-conical stones constitute a special problem: they occur in far western New South Wales, central Java, India and South Africa. Although a relationship is indicated by the similarities in the forms, techniques and patterns of incised markings of the artifacts in these widespread localities, it is not possible at present, by reason of their isolated occurrence in the south-eastern part of the Australian continent, to explain the manner of their introduction.

(2) Central and eastern Queensland.
Gulmari shields.
Absence of spear-thrower.
Club types.
Sewn multiple-piece bark canoes.

(3) Cairns-Cardwell-Atherton District.
Bark cloth.
Mummification.
Large grooved axe blades (hammer-dressed).
Shape of bi-cornual rigid baskets.
Sword clubs.
Broad, elongate oval shields.
Cross-boomerangs.
Gourd water bottles.
These are mostly introduced traits, but they form a very distinctive cultural group.

(4) Cape York.
Double- and single-outrigger dugout canoes.
Shell-decorated spear-throwers used as parrying shields.
Absence of boomerangs and shields.
Presence of numerous introduced traits (cf. Section E).

(5) South-east coastal area of Gulf of Carpentaria and adjacent islands.
Crude boomerangs and spear-throwers.
Shields.

(6) North-west-central Queensland.
Discoid polished axes.
Tanged axes.
Pole clubs.

(7) Central Australia and western Queensland.
Spear-throwers.
Shields.
Pole clubs.
Boomerangs of non-returning type (fluted).
Wooden containers (fluted).
Stone knives.
Stone *tjurunga*.
Waninga and *nurtunja*.
Fluted ornamentation.

PLATE Z.

Australian axe types showing techniques.

1. *Made from water-worn pebble.* (*A.M., No. E.* 48436.)
2. *Roughly flaked into shape from a boulder or quarried piece of stone.* (*A.M., No. E.* 47485.)
3. *Hammer-dressed axe.* (*A.M., No. E.* 45972.) *The pecking may be done on a water-worn pebble, or flaked type, of ground-edge axe.*
4. *Hammer-dressed axe with transverse groove.* (*A.M., No. E.* 9597.) *The blade and groove are sometimes polished.*
5. *Lenticular axe, King's Sound, north-west Australia.* (*A.M., No. E.* 44106.) *Note the careful chipping and the partial polishing of the body of this axe, which is symmetrical, and brought to an edge all round its circumference.*
6. *Lenticular axe, of the discoid type, north Queensland.* (*A.M., No. E.* 44909.)
7. *Tanged (or shouldered) axe, Lake Eyre district.* (*A.M., No. E.* 36167.) *Note the highly polished broad blade. This type of axe is made in western Queensland and is traded southwards to the Lake Eyre tribes.*

Concentric circle and spiral motifs and associated elements.
Geometrical motifs of rock paintings and engravings.
Ruddling on various objects.

(8) Lake Eyre District.
Sword clubs.
Decorative art.
Hooked throwing clubs.

(9) North Australia.
Hooked boomerang.
Snake motifs.
Painted ornamentation on various objects.

(10) Arnhem Land and adjacent islands.
Bark paintings.
Muraiian totemic symbols.
Absence of boomerangs and shields.
Painted ornamentation on various objects.
Sleeping mats, also used as dress.
Numerous introduced traits (cf. Section E).

(11) Western Australia.
Broad spear-throwers.
Elongate oval shields.
Boomerangs.
Zigzag motif and associated elements.
Concentric rectangle motif.
Ceremonial boards with relief carving.
Pearl-shell ornaments.
Carved baobab nuts.
Message-sticks.

In Western Australia there are important sub-areas. The south-west region represents the purest aboriginal culture extant, due to its being further away from contact with neighbouring island peoples than any other portion of the continent. The State as a whole is one of mixed elements, and does not allow of a division into areas of local variation. Local variations of great importance are the complex spear barbs of the Ashburton district, the raised figures on the sacred boards from Nannine, Murchison district, the variation in art patterns on the sacred boards and shields generally, and the distinctive decorative art of the northern Kimberleys district. Thus, Western Australia might be said, tentatively, to comprise

three sub-areas : (i) south-west and southern region, (ii) central and northern region, (iii) Kimberleys (incised boomerangs, pearl-shell ornaments, stone spear points worked on both faces). Hambly[94] has given a brief discussion of this problem.

The concentric rectangular line motif which occurs in the Kimberleys and Western Australia may not, as Spencer and Gillen suggested ([76], p. 699), have been derived from the concentric circle ; Heine Geldern ([35], pp. 180-85, pls. xliv-xlvi, figs. B-E) has traced the diffusion of the former motif from the bronzes of the Chang and early Tchou periods in China, through the Malayan Archipelago, into New Guinea and Melanesia, and as far as the Polynesian islands, and its Australian occurrence may form part of this diffusion.

Discussion.

In the above classification of traits into areas of local variation many important articles and customs have not been mentioned because they overlap two or more such " areas." They include skin cloaks in the southern half of the continent, and microliths, earth burial, stone and earth ovens, string girdles, pubic-tassels and armlets, fish-nets and hooks, and message-sticks in eastern Australia.

The question of discontinuous distribution has been brought out by Dr. Davidson's studies[8] [9] [10] [11] [12] particularly in regard to the netting techniques, spear traits and canoes. He has revealed that the earliest techniques have been replaced entirely over wide areas by later methods. This process has resulted in the oldest traits remaining in peripheral localities on the continent, and many of these probably belong to the original culture.

Another problem to be discussed is the absence of important traits in extensive regions. Thus the spear-thrower does not occur in eastern Queensland, the boomerang is absent in Arnhem Land, Cape York and part of Western and South Australia, and shields are absent in Cape York, Arnhem Land and part of the northern Kimberleys. The three items mentioned are so characteristic of aboriginal culture that their absence in any area is difficult to explain. The following reasons are tentatively advanced : (1) eastern Queensland was not on the line of diffusion of the spear-thrower ; (2) the substitution of the spear-thrower instead of a shield for deflecting spears may account for the absence of the latter in Cape York ; (3) the shield was either invented by the aborigines or was introduced elsewhere than in Arnhem Land and Cape York (e.g. Cairns-Cardwell coast)

Fig. 1.

Typical examples of (A) the softwood Gulmari *shield of Queensland, (B) bow-shaped parrying shield, made of hardwood, of south-east Australia, and (C) the large* Pikan *shield, made from a* Ficus *tree flange, of north-east Queensland. (Australian Museum collection.)*

Fig. 2.

Spear-throwers which are used for other purposes. (A) central Australian type used as a chisel and shallow container, (B) north-east Queensland type used as a parrying shield in Cape York, (C) New South Wales coastal type used as a paddle and shell-chisel. (Australian Museum collection.)

and did not diffuse to areas in which it is lacking. It might be pointed out that shields are not used in south-western Papua and Torres Strait islands; (4) the boomerang was invented by the aborigines and did not diffuse to those areas in which it is not present.

The areas of local variation in the material culture coincide only to a limited extent with the known distributions of languages, forms of social organization and physical types.

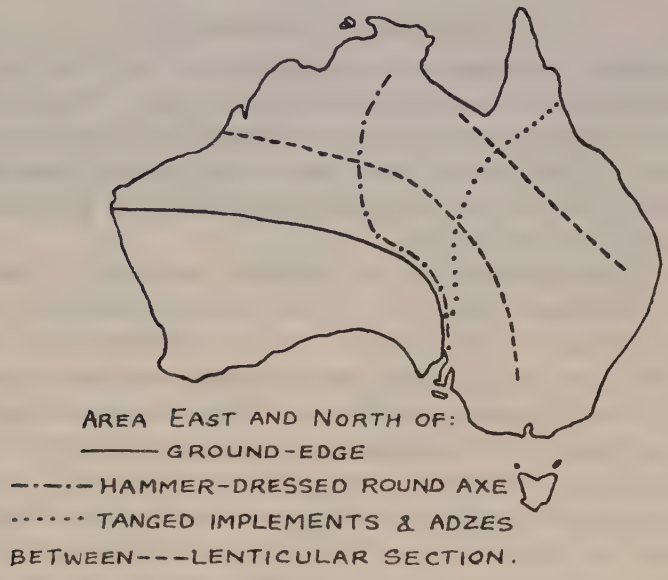

Fig. 3.

Approximate distributional limits of axe traits. The lenticular axe in its diffusion from north Australia has cut across the hammer-dressing technique spreading from north-east Australia.

The linguistic subdivisions of Schmidt ([71], map) agree with the areas of local variation in the Aranda central Australia area, the Lake Eyre area, the Cape York area, the Arnhem Land Area, the great West Australian area, and the New South Wales coastal and Darling River sub-areas.

Those special forms of social organization, namely moiety, section and sub-section, all cut across several areas of local variation of material culture, as a comparison of Figure 4 and Radcliffe-Brown's map[60] will show. The New South Wales coastal sub-area, Cape York and the western Arnhem Land coast are the only points of agreement.

Fenner's recent classification[22] of Australian crania based on non-metrical characters has revealed that the purest type (A) is widespread in the greater part of the continent (unfortunately insufficient material was available from Western Australia), and that the other two types, B and C, in which foreign characters are present, occur in areas which form the first point of contact between the Australian mainland and neighbouring islands in the north, areas in which introduced traits are present in the material culture.

E. External Influences.

An important problem for the ethnologist in the study of a primitive culture is to ascertain the external influences present. The line of demarcation between introduced and indigenous traits is difficult to define because in the analysis of the culture there must be taken into consideration conjectural factors such as origins, migrations of people, diffusions of traits, local variations, and inventions.

Research has revealed that in Australia infusions of new ideas and techniques have taken place over a long period, and they now form a considerable portion of the material culture. Reference to section B of this paper will show that opinion has not been unanimous upon this conclusion, but, in each instance, the claims of those writers who have sought to discredit it can be proved to be based upon incorrect premises. Usually, they can be traced to an insufficient study of Oceanic cultures. In this section an attempt is made to define the traits considered to have been introduced into Australia, or which have an historical relationship with New Guinea and more distant areas, the nature of which it is not yet possible to decide. A number of problems are posed which cannot be satisfactorily settled until a complete distributional analysis has been made of all traits in Australia and neighbouring cultures.

In Australia much stress has been laid by earlier writers upon separate migrations of people to explain the differentiations of culture. This theory arose by reason of (1) the strong evidence, now conclusive, that the Tasmanians preceded the Australians on the continent,[14] (2) the existence of opposed moieties, and (3) the variability of all aspects of aboriginal culture. Wagner ([98], p. 153) and Fenner ([22], p. 302) conclude from their craniological studies that there has been an intermixture of Tasmanians and Australians on the continent.

Davidson ([14], pp. 56-57) said that there seems to be a basic similarity between Tasmanian and Australian culture, "a fundamental unity of

Fig. 4.

The areas of local variation (Nos. I-II) in Australia, the boundaries of which are tentatively suggested. The arrows indicate the sources and points of contact where external influences appear to have entered Australia.

Fig. 5.

Rock painting and engraving motifs which occur in Papua. Paintings: *A. Yoiworo. B. Yaritari. C. Lohomunidabu. H. Wagava. I. Isakerikeri. J. Wagava. K. and L. Isakerikeri. O. and Q. Owanibetaba. P. Wagava. R. Isakerikeri.* Engravings: *D. Boianai. E. and F. Bisiai. G. Sogeri region. L. Serinumu. M. Sisiana. N. Sogeri region. S. Lohomunidabu. T. Sogeri region.*

After Williams.

pattern which cannot be confused with that of any other region, although individually many of the traits are found elsewhere. For instance, we find numerous traits which appear to be typical of Tasmania and of widespread distribution in Australia. In material culture there are simple spears, throwing-sticks, twined baskets, skin cloaks, rolled skin drums, the beating of two sticks for cadence, simple windbreaks, spears concealed by dragging through the grass with the toes, poling of rafts . . . scarification at initiation . . . outline type of rock carvings " to which might be added cremation of the dead on the east coast of Australia and the rush-raft of the lower Murray basin. Davidson, continuing, remarks that although many of these traits are " too poorly known to be considered individually as acceptable proof of relationship . . . doubt is lessened considerably by the proximity of the two regions and by other considerations," and (p. 58) " the differences between historic Tasmanian culture and modern Australian culture are not so apparent when comparisons are made with the appearances in the peripheral areas of the continent where the more recently developed or acquired Australian traits are also wanting. All indications suggest that as we go back in time, the lesser would be the differences and the greater would be the similarities in the cultures of Tasmania and the continent."

An interesting point to note is that there is a progression of culture advances in Australia extending from the south-western portion of the continent northwards and north-eastwards, and also from the south-eastern portion northwards and north-westwards. The south-west and south-east regions are the most distant points on the continent from contacts with neighbouring island culture. Outstanding deficiencies in south-west Australia comprise canoes, netting techniques, reed-spears, fish-nets and hooks, platform burial, knobbed and bladed clubs.[69] Similarly, in south-east Australia, the use of one-piece bark canoes and containers, simple loop netting, coiling and hammer-dressed round-axes, indicates an earlier stage of development than the use in Queensland of the more advanced sewn multiple-piece bark canoes and containers, loop and twist and hour-glass netting techniques, polished lenticular axes and tanged axes, and especially of the many Papuan traits in Cape York. Although we cannot define the original culture of the Australian aborigines as that occurring in either south-west or south-east Australia because the diffusion of introduced traits has penetrated both of these areas, it is apparent that the relatively primitive culture of the south-west area is not far removed from a culture representing an admixture of Tasmanian and Australian aboriginal elements.

Wagner, ([98], p. 152) in his work on crania, found that Tasmanian characters have survived more definitely in this isolated corner of Australia than in any other part of the continent.

It is convenient to deal with external influences in groups.

The references given in the following lists of traits in groups A-G are to adequate descriptions and to previous claims of relationships; they do not constitute a bibliography of each trait in Australia.

GROUP A. ANCIENT RELATIONSHIPS.

Stone Implements and Industries.

Hoabinhien I culture, comprising *Sumatra* type pebble implements, high-crowned cores, and hammer-stones, with which is sometimes associated red-ochre used in burials. This culture is considered to be the beginning of the mesolithic era in south-east Asia and Malaya, and forms the earliest known link between this area, Australia and Tasmania. (Cf. Tindale *re* Kangaroo Island implements,[83] and McCarthy *re* general cultural relationship.[50] [51]

Hoabinhien II and III, comprising hand-axes worked on both surfaces, ground-edge technique, bone tools, grindstones, mortars, hammer-stones, incised pebbles and red ochre with burials. Both stages occur in south-east Asia and Malaya, and in Australia the various traits are widespread. (Cf. McCarthy.[50] [51])

Withe axe handle. Distribution almost coincides with that of the ground-edge technique in Australia. New Caledonia, Edge-Partington ([16], Ser. I, Pt. 1, p. 132, fig. 4); Solomon Islands (Australian Museum specimens).

Hunting Appliances and Weapons.

Barbs cut in solid. Widespread in Oceania and Australia. Davidson ([9], Vol. XLIII, No. 2, pp. 63-72, figs. 10-23).

Shooting the disc. Roth ([68], Bull. 4, p. 18). Bow and arrow used in New Guinea, Williams (Trans-Fly, [91] p. 441). Widespread in Australia, where spears are used.

Use of roots and leaves for poisoning fish in pools. Universal in Australia.
Trans-Fly area, western Papua, Williams ([91], p. 18, 421), Kiwai Id., Landtmann ([45], p. 30), Torres Strait, Haddon ([5], Vol. I, p. 153).

Burning off areas of grass and scrub to secure game. Universal in Australia.
Trans-Fly area, western Papua, Williams ([91], p. 18).

Brush fish weirs. Universal in Australia.
Roth ([68], Bull. 3, sect. 15K, fig. 14).
Kiwai Id., Landtmann ([45], p. 30); Trans-Fly area, western Papua ([91], p. 421).

Domestic Appliances.

Frame huts covered with grass, branches and bark—circular type.
Widespread in Australia. Roth ([68], Bull. 16, sects. 2-10, figs.), Love ([46], p. 89), Horne and Aiston ([38], figs. 12-17); Torres Strait, Haddon ([5], Vol. IV, ch. iv); Trans-Fly area, western Papua, Williams ([91], p. 15).

Fig. 7.

The trade routes linking Cape York, Torres Strait islands, and New Guinea. Note how the New Guinea routes converge upon Mawatta and Saibai, which act as distributing centres.

Drill method of making fire.

Universal in Australia and Tasmania; Roth ([68], Bull. 7); Torres Strait, Haddon ([5], Vol. IV, p. 121, fig. 149); Trans-Fly area, western Papua, Williams ([91], p. 39); Kiwai Id., Landtmann ([45], p. 59).

Twining technique.

Australian distribution, Davidson ([8], pp. 273-75, fig. 11). Tasmania, Davidson[8]; Trans-Fly area, western Papua, Williams ([91], p. 433, pls. xiv, xvii, text-figs.). Widespread in New Guinea.

Ceremonial and Magic.

Wearing of nose-style. Universal in Australia, Torres Strait islands, New Guinea and Melanesia, but absent in Polynesia, Micronesia, Indonesia and Tasmania, Haddon ([5], Vol. I, p. 294).

Cicatrization. Universal in Australia and Tasmania.

Torres Strait, Haddon ([5], Vol. IV, p. 25; Vol. I, p. 296); Trans-Fly area, western Papua, Williams ([91], p. 403); New Guinea, Haddon ([5], Vol. I, p. 296).

Extraction and projection of stones, pieces of stick or bone, by medicine-men and sorcerers. Universal in Australia. Torres Strait, Haddon ([5], Vol. V, pp. 324-5; Vol. VI, pp. 222-3); Trans-Fly area, western Papua, Williams ([91], pp. 341-3).

Use of stones in hunting magic, to represent totems, culture-heroes and their activities. Various forms of these cults occur in Australia; in Torres Strait, Haddon ([5], Vol. I, pp. 196-200) records stones representing bananas and turtles, and (*op. cit.*, p. 251) stones associated with culture-heroes; in the Trans-Fly area, western Papua, Williams ([91], pp. 90-91, 100-101) records stones representing hawks and the eggs of totems. Haddon (*op. cit.*, p. 368) quotes Wirz's opinion that the *dema* of the Marind-Anim and the *tjurunga* of Australia represent an ancient connection between New Guinea and Australia.

Pastimes and Playthings.

Play-balls.

Widespread in Australia: Torres Strait, Haddon ([5], Vol. IV, pp. 312-3, figs. 259-60); Papua (Elema), Holmes ([36], p. 280). Use widespread in Oceania.

Throwing-dart.

Widespread in Australia, and known as Weet-weet. Roth ([68], Bull. 4, pp. 18-19); Torres Strait, Haddon ([5], Vol. IV, p. 317, fig. 264); Fiji (Australian Museum specimens); Tikopia, Firth, *Oceania*, Vol. I, pp. 64-96, fig. 2, 1930; Ellice Is., Edge-Partington ([16], Ser. III, p. 49, fig. 1). Also Niue, Samoa, Tonga, New Zealand, Firth, *op. cit.*, p. 64.

Rock Engravings and Paintings (Fig. 5, Nos. A-T).

Anthropomorphs with radiate headdress [Fig. S].

Sydney district, N.S.W., Campbell ([6], pl. 13, fig. 4, pl. 14, fig. 2, pl. 20, fig. 4), and others not figured.

Port Hedland, W. Australia, Davidson ([14a], fig. 26B).

Papua, at Lohomunidabu, Williams ([88], p. 145, pl. xv, figs. 2, 7).

Lizards. Widespread in Australia, Davidson.[14a]

Papua (central and eastern areas), Williams ([88], pl. IX, figs. 1-2).

Snakes. Widespread in Australia. Davidson.[14a]
Papua at Wakaui Wai, Williams ([88], pl. XII, fig. 1C).

Bird track. Widespread in Australia. Davidson,[14a] Mountford.[56]
Incised on trees in Purari Delta, Papua, Williams ([88], p. 149, footnote). Also Africa, South America and other parts of the world.

Circle and dot or cup and ring motif [Fig. G].
South Australia, Mountford ([56], pl. 1, fig. 1, figs. 199-205).
Papua, in Sogeri region, Williams ([88], pp. 145, 148-9, pl. IX, fig. 5, pl. XIV, figs. 1-2, pl. XVI, fig. 4). Associated with bronze age burials in Great Britain, and occurs in South Africa, Hindustan, Europe and South America, Windle.[92]

Barred, tailed and linked circles [Figs. H-M].
Australia, Davidson ([14a], figs. 17, 20, 22, 39B, 40, No. 8), Mountford ([56], numerous examples).
Papua, at Wagava and Sisiana, Williams ([88], pp. 148-9, pl. XI, fig. 1D, pl. XVI, figs. 7-8).

Concentric circles [Figs. D-E].
Australia, Davidson ([14a], fig. 40, Nos. 6 and 33, pl. 2), Mountford ([56], figs. 190, 194). South and north Australia. Sydney district, N.S.W.
Eastern Papua, Williams ([88]. p. 150, pl. XII, fig. 4 ; pl. XV, fig. 6 ; pl. XVI, figs. 4, 6).

Circle, or concentric circles, with one or more rows of lines radiating from centre to outside circle [Fig. F].
South Australia, Mountford ([56], figs. 89, 178), also Broken Hill district, New South Wales.
Eastern Papua, Williams ([88], p. 132, fig. 4 ; pl. XII, fig. 1B,; pl. XVI, fig. 9).

Designs consisting of a number of roughly parallel lines, with centre-line running from end to end, and sometimes enclosed by another line. The simpler types suggest a floral motif, but those with a large number of lines have been referred to as " vertebræ " patterns. It occurs also without centre line [Figs. A-C].
South Australia, Mountford ([56], figs. 6, 10, 12, 85, 179, 195), Davidson ([14a], figs. 37L, 38, 44, B, C, K).
Central Division, Papua, Williams ([88], pl. IX, fig. 1 ; pl. XI, fig. 2D ; pl. XII, fig. 3E).

Concentric U motif [Fig. N].
South Australia, Mountford ([56], fig. 11), central Australia, Davidson ([14a], fig. 44H), also Broken Hill district.
Eastern Papua, Williams ([88], p. 147, pl. XI, fig. 2 ; pl. XIV, fig. 5).

Boomerang design [Fig. O].
South Australia, Mountford ([56], figs. 10, 85), on carved trees in New South Wales, Etheridge ([19], pls.). Widespread in Australia.
Papua at Lohomunidabu, Williams ([88], pp. 128-9, pl. XV, fig. 4).

Groups of incised lines.
Widespread in Australia, Davidson ([14a], pp. 7-8, figs. 2-3).
Central Division, and eastern Papua, Williams ([88], pp. 149-50).

" Sun " (?) motif [Fig. T].
Australia, Davidson ([14a], figs. 21a, 31a, 32, and p. 74).
Papua (Sogeri region), Williams ([88], pl. xiv. fig. 3).

Y motif [Fig. P].

Central Australia, Davidson ([14a], pl. 2).

Central Division, Papua, at Wagava, Williams ([88], p. 148).

Right-angled cross motif [Fig. R].

Central Australia, Davidson ([14a], pl. 2).

Papua, at Isakerikeri and Wagava, Central Division, Williams [[88], fig. 1A, pl. XI, fig. 1E, pp. 147-8; pl. XIV, fig. 5 (lower)].

E motif [Fig. Q].

South Australia and Victoria, Davidson ([14a], fig. 14, figs. 35, 40, No. 14).

Central Division, Papua, Williams ([88], p. 147. pl. XII, fig. 3C; pl. XIII, fig. 1C).

Hand stencil.

Widespread in Australia. Davidson ([14a], pp. 12-13, fig. 33).

Central Division, Papua, Williams ([88], p. 145).

Netherlands New Guinea, Roder.[65]

The stencilled hand has been recorded from Europe, Africa, India, South America and other parts of the world.

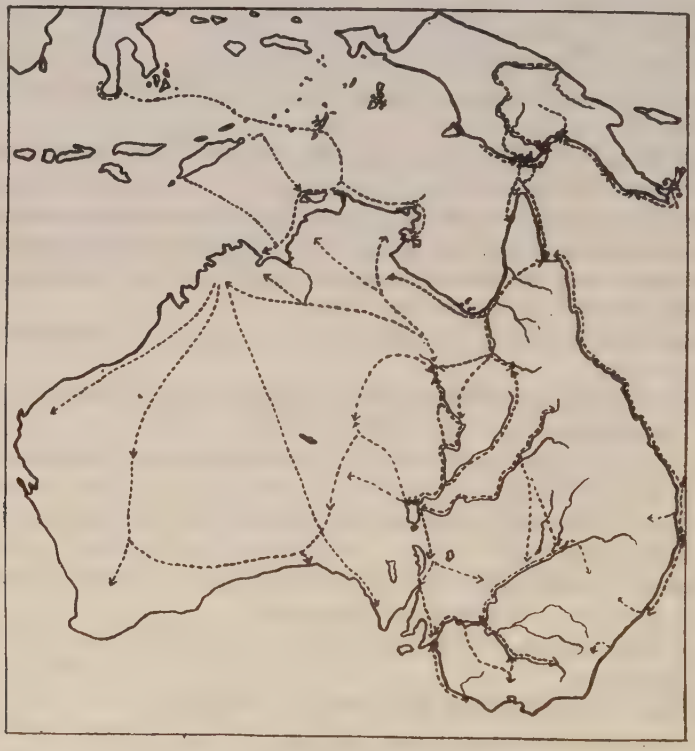

Fig. 8.

The intra- and extra-Australian trunk trade routes. It is important to realize that these routes function sectionally, and that traits and ideas diffuse along their entire extent.

Rock engraving techniques.

Outline figures consisting of a disconnected series of punctures or a continuous groove. Widespread in Australia, Davidson ([14a], pp. 6-8); Papua, Williams ([88], p. 135, pls. VIII-X). Williams states that the Papuan carvings were made by the pecking or hammer-dressing technique; this technique was employed for rock engravings throughout a wide area in the interior of Australia (Davidson,[14a] p. 9).

The relationship between the large number of identical motifs among the rock paintings and engravings of central and South Australia and far western New South Wales, and those of central and eastern Papua is a special problem. These motifs are absent in eastern Australia, and their distribution indicates that the connection has not been through Cape York; nor do they occur in Arnhem Land so far as is known, although the extensive series of rock paintings and engravings on the north coast of the continent, e.g. Chasm Is., Wessel Is., and mainland localities, have yet to be studied and the full range of motifs and techniques recorded. Naturalistic subjects seem to predominate in north Australia (Davidson[14a]), where, also, the decorative art is of a distinctive nature. Whether an older decorative art, embodying the geometric designs listed above, once existed in Arnhem Land, and has been supplanted by present day motifs and designs will probably never be known, although such a theory offers a plausible explanation of a link between the pictographic art of the interior of Australia and that of Papua. Rock paintings have been reported in Netherland's New Guinea, among which the stencilled hand and the human figure appear (Roder,[65] Figs. 1 and 6); from this region, also, the full range of motifs and techniques is not known.

Discussion.

This group consists of traits which have a wide distribution in Oceania and are apparently of ancient origin. Some occur in Tasmania, Australia, Torres Strait islands and New Guinea, and, though some are not found in Tasmania, they form an integral part of the Australian culture throughout the continent. The distribution of some of these traits extends to Melanesia, Polynesia, Micronesia, and even to other parts of the world. Actually, one can only state the distributions, and remark that, while it is probable that an historical relationship exists between them, it is not clear from which culture or locality they originated, nor are the processes of culture dispersal which brought them to Australia known. Several possibilities are indicated. One is that of parallel developments; thus the graving tool made of the lower jaw of a marsupial with the incisor tooth in place is used

throughout Australia and New Guinea, and is probably an example of the use of local materials. Some of the traits in this group are probably survivals of the Tasmanian culture in Australia, as Davidson[14] has suggested. Many of them no doubt belong to the original Australian culture. Others may have belonged to the aboriginal population of New Guinea, and have survived among the present inhabitants; in this connection it is interesting to draw attention to Haddon's remarks that " we may assume that in the districts so ably studied by Mr. Williams there was an aboriginal population with a very low culture " ([91], Trans-Fly area, western Papua, introduction, p. xxxiii). Haddon has made a similar statement about the Torres Strait islands.

GROUP B. TRAITS INTRODUCED INTO AUSTRALIA FROM NEW GUINEA, VIA TORRES STRAIT ISLANDS AND CAPE YORK.

Stone Implements and Industries.

Neolithic traits, comprising the hammer-dressing technique and transverse groove for hafting (eastern half of Australia), round-axe (eastern and central Australia), adzes (eastern Australia); these traits are widespread in Malaya and Oceania. (Cf. McCarthy.[50] [51]) A study of Australian axes (pl. AA, figs. 1, 7) reveals a progressive refinement in their shape and workmanship, from the south to the north of the continent, which led finally to the polished round and lenticular types, in accord with a similar advancement in Oceania generally; it is of interest to note that the quadrangulate and keeled forms have not yet penetrated into Australia. The grindstones and mortars also progressed from roughly quarried slabs to carefully shaped hammer-dressed products. At the present time, we have to rely upon typological and distributional evidence in establishing the above relationships, and their precise significance cannot be realized until archæological data is available for Australia and New Guinea especially. The general chronology of the diffusions has been revealed by the splendid work of the prehistorians of Indo-China, Malay Peninsula and Netherlands East Indies.

Bronze Age. Large tanged implements (Casey,[95]) and axes.

McCarthy[50] [51] concluded that they are derived from the tanged bronze axe which occurs in Malaya, and at Lake Sentani in New Guinea. Tanged stone implements were dredged up from river beds on the Yodda Valley goldfield, Papua.

Proto-Historic Traits.

Hunting Appliances and Weapons.

Multi-pronged fishing spears.

Australian distribution, Davidson ([9], Vol. XLIII, No. 2, pp. 54-58, fig. 7); Torres Strait, Haddon ([5], Vol. IV, p. 157, fig. 171); Kiwai Id., Landtmann ([45], p. 29); Purari Delta, Williams ([89], p. 15).

Detachable bone barbs (*muduk*) on spears.

Eastern Australia, Davidson ([9], Vol. XLIII, No. 2, p. 72, fig. 24); Australian, New Guinea and other Oceanic occurrences, McCarthy.[51a]

Smyth ([73], Vol. II, p. 306, fig. 227) records the use of the *muduk* for catching fish in the Geelong district, Victoria. A. G. Beasley (*Pacific Island Records :* " Fish Hooks," 1928) says that the double-pointed gorge used in this manner is an ancient practice in the Pacific, where it is employed in Samoa (p. 23, pl. 37, bone), Cook and Hervey Is. (p. 44), Santa Cruz, Banks Is., New Hebrides (pp. 63-65, pls. 97-99, curved wood), Gilbert and Caroline Is. (pls. 102, 103, fig. 6) ; at Collingwood Bay, New Guinea, and in the west Carolines, the gorge idea is incorporated in the fish hooks (p. 80 and p. 98). It is recorded by Landtmann ([45], p. 29, of wood) at Kiwai Is. and by Edge-Partington ([16], Ser. II, p. 66, fig. 7) in New Caledonia.

Stingray-spine barbs and points, and multi-spine heads.

North and eastern Australia, Davidson ([9], Vol. XLIII, No. 2, p. 58, fig. 7) ; McConnel ([52], p. 466) says that the Wiknatara tribe have a story of two mythical brothers who wandered down the coast and introduced the stingray-spine spear ; Torres Strait, Haddon ([5], Vol. IV, p. 197).

Composite two-piece reed spear.

Australia, Torres Strait and New Guinea, Davidson ([9], Vol. XLIII, No. 2, pp. 54-63, figs. 8-9).

Composite three-piece spear.

Central Australian region, Davidson ([9], Vol. XLIII, No. 2, p. 58, fig. 7), who claimed that this type of spear developed in central Australia. As it occurs also among the Pitta Pitta tribes of central Queensland (Roth,[67] sect. 249), Wellesley Is. (Roth,[68] Bull. 13, fig. 12) and on the Sepik River, and also three-piece arrows from the Bena Bena district, New Guinea (Australian Museum specimens) this claim is open to doubt.

Bow and arrow.

Batavia River, Cape York, McConnel ([52], Vol. VII, No. 1, p. 78). Widespread in New Guinea and used in Torres Strait (Haddon,[5] Vol. IV, chapter IX).

Staining and polishing of weapons in eastern Australia.

Widespread in New Guinea, Melanesia and Polynesia.

Shark teeth knives.

Cape York, Roth ([68], Bulletin 7, sect. 34, fig. 143).

Torres Strait, Haddon ([5], Vol. II, p. 172). Occurs also in New Zealand, Tahiti, Hawaii and Gilbert Islands.

Fish-hooks and files.

Northern and eastern Australia. Roth (Queensland,[68] Bulletin 3, sect. 15f, Bulletin 7, sect. 68, pl. xxxvi, figs. 257-8).

Torres Strait, Haddon ([5], Vol. I, p. 150 ; Vol. IV, pp. 154-5, fig. 168).

Stone files, New South Wales coast, Thorpe.[81]

Kiwai Is., Landtmann ([45], p. 29).

Conical traps (for fish and wallaby capture).

Queensland, Roth ([68], Bulletin 3, sect. 32, figs. 22-23 and sect. 15h).

Torres Strait, Haddon ([5], Vol. I, p. 151) ; Kiwai Is., Landtmann ([45], p. 30) ; Trans-Fly area, western Papua, Williams ([91], p. 421) ; Purari delta, Papua, Williams ([89], p. 13).

Club—Pineapple type.

North-east Queensland, Roth ([68], Bulletin 13, sect. 27, pl. LXI, fig. 9) ; Torres Strait and New Guinea, Haddon ([5], Vol. IV, pp. 190-95, figs.). Stone type widespread in New Guinea.

(To be concluded.)

F. D. McCarthy.

Papua: Social Anthropology. **Austen.**

Botabalu: A Trobriand Chieftainess. *By Leo Austen, Dip. Anthr., former Assistant Resident Magistrate, Trobriand Islands, Territory of Papua.*

The following narrative was given to me in Kiriwinan by Mitakata, the late chief of Gumilababa village, in the Trobriand Islands of Papua. In the translation, I have kept faithfully to the original.

Gumilababa is situated about a mile from the Government Station of Losuia, which is on the Kiriwinan lagoon. The waterhole, called Yuwola, is near the present magistrate's residence, and during my time there was used as a swimming pool for Raphael Brudo's children.

The name "Botabalu" is formed of the feminine prefix *bo*, and the name of the royal sub-clan, *tabalu*.

The descendants of Botabalu were the chiefs Mitakata, Bukoia, Utula, Mobununa, Kalakadoa, Mitakata (the late chief) and Utula (the present chief).

There is another Mitakata in the Trobriands at the present time. He is the paramount chief of Kiriwina, and was the nephew of To'uluwa, the paramount chief so often mentioned in Professor Malinowski's works.

The History of Botabalu.

"A long, long time ago, the cousins of Botabalu appeared. They left the village of Toluia (near the present Kudukwaikela), and came to Gumilababa. There Vilikeda begat a girl called Ugwatula, who begat a girl called Bodomalia, who first begat three boys called Mitakata, Utula and Mobununa, and afterwards a girl called Botabalu. Botabalu's father was named Galabuwa.

"Botabalu begat a girl, whom she called Vilikeda after her ancestor. Vilikeda died because the people of Bau village made black magic against her. Botabalu again gave birth to a girl whom she called Ugwatula. By and by Ugwatula died. Botabalu bore another child, a boy whom she called Giokabwalu.

"One day Botabalu took the child with her to her garden, where she had gone to clean up the grass. She left the child on the roadside. While he was lying there some Bau people came along and bewitched him and as a result the child died.

"Botabalu then became very angry with the Bau people, and said: 'You will soon realize how powerful and terrifying I can be when I make magic against you.'

" By and by she took some *megua* (herbs and leaves used to make magic), to which she gave the name *tokimwadu* (which means ' the people who are naked '). Over this *megua* she chanted her spell :

' Suppose you are hungry, you shall arise.
Your food in your yam houses will be finished.
Nothing you will find there.
Only a mouthful of food shall you eat.
Your people will be hungry, and your bodies heavy.
You men will be too weak to tie your pubic coverings on.
You women will have heavy bodies.
You women will be so hungry you will not be able to tie on the *doba* grass skirt.'

" Botabalu chanted this spell because she thought of this magic's name as *tokimwadu*, and she thought that when the people became so weak from hunger they would go about naked.

" The royal sorceress now makes further magic to avenge the death of her child.

" She takes a magic wand, which she has already charmed, and gives it to a messenger called Daimigina, and tells him that many men will now die as the result of her vengeance.

" Daimigina takes the magic stick and hides it in his little bag. He first passes by a village called Omaisosu (on the Kuluvitu road near Luia), and soon all the Omaisosu people are dead. Then he goes on to the village of Botumavava, and there too all the people die. Daimigina continues on to the Lobua side and visits the villages of Ilasasa, Udakalawa, Laweu, Waibola, Wadadamu, Bau and Busi. At each village the magic stick works its devilment, and the people die. Thus Botabalu avenges the death of her child.

" By and by Daimigina arrives at a village-beach called Kadalawa, where he stays for a month busily preparing a different spell. Then he leaves Kadalawa and goes to Kavataria, where he orders the people to make gardens for Botabalu. The spell he has made at Kadalawa was to bewitch the various people so that they would obey his orders. From there he goes on to Mulosaida and gives the same commands. Then he continues on to the villages of Boitalu, Siviagila, Lobua, Oiliesi, Yalaka, Luia, Buduwailaka, Wabutima, Kudukwaikela, Oiveiova, Osaisuia and back to Gumilababa. At each village he delivers the same orders regarding the making of gardens

for Botabalu, and also directs the people to give the first fruits of their gardens to Botabalu.

" In order to help the people with their gardening, Botabalu at the correct time places a stone axe, called *ninisi*, in the Gumilababa ground. This axe has great powers, and together with Botabalu's garden magic the harvest will be abundant, and her people will not be hungry.

" Botabalu lives in a high-chief's house, and has women and girls for her companions, who keep the house clean and tidy. Whenever there is excreta to be thrown away, a special present is paid to her companions. She is a stout woman. and does not walk about. Most of her time is spent in the village, and because she is a great chieftainess, with many kinsmen and numerous villages under her rule, she is greatly feared by all.

" Sometimes she calls to her husband's relations to bring her food for her yam houses. At these times she kills countless pigs to feast (*sic*) her husband's kinsfolk. Even among her brothers Mitakata, Utula and Mobununa the autocratic lady takes precedence in all things, and her brothers bow in reverence before her, as they fear her and think she may bewitch them and make them hungry, or even die, if they do not obey her desires and caprices.

" The people know her power, and how she could even throw a spell on the food in the yam houses. She can bewitch the food so that it tastes so bitter that a man can eat only a small portion, and then does not wish to eat any more.

" Sometimes her people come to Gumilababa to feast at Botabalu's expense, and they will listen to her words of wisdom as she sits on her high platform. She knows a great number of the old-time stories, and at these times she relates these graphic tales which interest the people greatly. At these feasts she intimates to those assembled there that her garden magic is most powerful, and that they need not be afraid as she will see that they have food in abundance and there will be no one hungry.

" Not all her magic is malevolent. Her garden magic can be used for the benefit of the people, and she knows a number of spells for sickness. She has charms for coughs, itchiness, white hair, swelling of bodies, dysentery and eczema. If there is an epidemic, she gets the people to sweep the village, and the women then take their brooms to Miligui beach and throw them away in deep water. Botabalu impresses on the villagers that her magic against disease is very powerful, and the epidemic will not return. She believes in keeping her people's bodies well and strong and thinks dancing and other

exercises are good for them, so she often calls the Kuboma people to Gumilababa to dance and play games.

" If any visitor comes to her village and she is seated on her chief's platform, he must first call to Botabalu in reverence, and then she knows it is a friend walking about. Should, however, the visitor or visitors not call out to her in reverence, she becomes angry and thinks out a spell and bewitches them. Then the next time any of them climb up a tree to obtain fruit they pick the fruit, eat it, and then fall to the ground—dead. Thus Botabalu rules by fear of herself and her magic.

" When Botabalu desires to bathe, her girl companions lift her up and carry her on a litter to the waterhole called Yuwola, near Losuia. It is forbidden for man or woman to go near the waterhole while Botabalu bathes. She must bathe alone, and in privacy. Yuwola belongs to Botabalu alone, and in this water she makes her magic to produce abundant harvests. She is so fat she can hardly walk, and that is why she is carried to the waterhole. Her body is covered with so much tattooing that this too excites the people's fears.

" Although in the time of Botabalu no man could go near the waterhole of Yuwola while the chieftainess bathed, to-day I, Mitakata, high chief of Gumilababa, rule that the prohibition shall be lifted, and people other than myself may bathe there. Nowadays I do not use Yuwola to produce abundant harvests as I have other magic, and because the waterhole is too close to the Government's house. So I have lifted the tabu."

LEO AUSTEN.

PROCEEDINGS OF SOCIETIES:

NEW SOUTH WALES:

Native Land Tenure in the Western Pacific. *Summary of a lecture delivered before the Society by Dr. Ian Hogbin on 20th June,* 1939.

The lecturer described his intention to investigate the land tenure system of a New Guinea people with whom he was personally familiar, in order to indicate by example the sort of information necessary for an understanding of the relation between natives and their territory.

The community concerned occupies Wogeo, one of the largest of the Schouten Islands, a group lying off the north coast of the mainland in the vicinity of the mouth of the Sepik River. Land in Wogeo is of the usual three types: forests, building sites in the villages and areas

used for agriculture. Practically every native has the exclusive right to cultivate a set of allotments large enough to supply all the foodstuffs he and his family require both for their own consumption and for meeting customary obligations. In the rare case of a man not having sufficient land, application is made to a more fortunate relative, who surrenders his cultivation rights in a few superfluous plots, sometimes temporarily, in which case he receives occasional presents as acknowledgment, sometimes for good, when no return is made. Lease and sale are alike unknown.

As regards inheritance, a person is allowed a certain amount of freedom in the distribution of his property among his heirs, though this liberty is curtailed by the claims of the community at large, which expressly forbids disinheritance and decrees who exactly the heirs are to be.

An official, the *kokwal* of the clan, is available for the settlement of disputes, but he intervenes only when the general harmony of the village is endangered. His office is hereditary, but as wealth is required for its maintenance, the villagers when called upon have to provide tribute in the form of labour and produce. A *kokwal* has no legal right to override the cultivation rights due by inheritance to one of his followers, but, having the necessary power, he sometimes does so, especially when he can put the land to better use than can the legitimate heirs.

In speaking of the relation between land tenure and religion, Dr. Hogbin pointed out that in Wogeo the association is especially close, the islanders believing that the supernatural provides the ultimate sanction for their whole system of rights and privileges. There are four types of "ghosts" or *nanarangs* in Wogeo. The first two varieties give a supernatural sanction for the occupation of the island by the present population; the third gives the same type of sanction for the tenancy of the districts; and the fourth provides authority for the exercise of rights of residence and cultivation.

The lecturer concluded his address by referring to a most extraordinary custom whereby the fastening by an individual of a rafter on a man's house gave that individual certain rights to a certain set of allotments. The really significant feature of the custom is the explicit statement that it is the foundation of the land tenure system, not its reflection.

Aboriginal Life in the Granites Region, Central Australia. *A programme of films shown before the Society on the 15th August,* 1939.

In the three films screened various activities in the daily and ceremonial life of the aborigines were shown. They were taken by members of the Board of Anthropological Research of the University of Adelaide during their 1936 expedition. The Society desires to express its thanks for the opportunity of showing these films to its members, by whom they were greatly appreciated.

Primitive Art. *Summary of a lecture delivered before the Society by Mr. K. E. Read on the 19th September,* 1939.

The difficulty of treating art in a scientific manner was pointed out by the lecturer as a preliminary to his discussion of the æsthetic impulse in man. Mr. Read said that he did not think that the postulation of a universal æsthetic impulse was sufficient to explain all forms of primitive art. He showed its relation to its cultural setting and discussed its social origin

and function. He raised the question as to whether primitive art was truly creative and emphasized the importance of the influence of tradition and magic on design.

Primitive art and its relationship to ritual and religion followed and in the light of this discussion, the personal decoration of the South American Indians, the Chukchee and the Australian Aborigines, and the decorative art of New Guinea, the Huichol Indians and the Chukchee was analysed. Primitive art was then discussed in its relation to recreation, followed by a section on the dance and its social significance. The significance of primitive poetry and music was evaluated and a comparison was made between primitive art and children's art. Finally the conclusion was made that it is wise to reject a too effusive admiration of primitive art and to regard it in the light of its value to the people who practise it.

Aboriginal Australian Material Culture: Causative Factors in its Composition. *The Presidential Address delivered before the Society by Mr. F. D. McCarthy on 17th October,* 1939.

The address, as delivered before the Society, has been published in full as an original article in this issue of MANKIND.

Annual Report of the Anthropological Society of New South Wales, 1939. *Summary of the report delivered at the Annual Meeting of the Society, 17th October,* 1939.[1]

During the year two very important and far-reaching decisions were made by members, who approved (1) of the affiliation of the Society with the Australian Anthropological Association, and (2) of the arrangement whereby MANKIND became the journal of the Anthropological Societies of Australia.

Proposals for the foundation of an Australian Anthropological Association were under consideration about three years ago. No finality was reached, and negotiations ceased. During October, 1938, the Council decided that new proposals should be drawn up and submitted to the Anthropological Societies of South Australia and Victoria.

On 18th April the members of our Society unanimously approved of affiliation with the Australian Anthropological Association. Official advices were also received that the members of both the South Australian and the Victorian Societies had approved of affiliation. The three societies under the Constitution are now the foundation members of the Association.

We feel that the establishment of the Australian Anthropological Association is one of the most important advances in anthropological organization which has taken place in Australia in recent years. Not only does the Association act as a co-ordinating body for all the existing anthropological societies in Australia, but it gives each affiliated society wider scope and added interests.

The journal MANKIND was first issued in March, 1931. It continued to be issued as the journal of this Society until the end of the year 1938. In order, however, that it should not

[1] The complete annual report was printed and distributed to members prior to the annual meeting. An appendix to the report contains the only official list of financial members of the Society.

only have a wider circulation, but should also have a wider circle of contributors and become more representative of Australian anthropological activities, the Council invited the Anthropological Societies of South Australia and Victoria to accept a share in its production. A conference of delegates from the three societies was held at Canberra during the Science Congress in January, 1939. This Society was represented by Dr. C. Anderson, Miss E. Bramell, Mr. F. D. McCarthy and Mr. C. C. Towle. The delegates unanimously agreed, subject to the approval of members of each of the three societies, that MANKIND should in future be issued as " The Journal of the Anthropological Societies of Australia," and that this Society should continue to control its production. The members of each of the three societies subsequently approved of the proposal.

We feel that MANKIND has now attained the status of being one of the foremost anthropological journals in Australia and the Pacific. It is distributed throughout Australia, and is sent to many of the leading institutions and libraries overseas.

The President, Mr. F. D. McCarthy, was this Society's official representative to the Australian and New Zealand Association for the Advancement of Science which met at Canberra in January, 1939. It is pleasing to place on record that so many of our members were actively engaged in the work of the Congress, and that several of them read papers on their researches.

The Council is desirous that more members should become actively interested in field work. New South Wales is an area of archæological riches and the field worker will find relics of one kind or another in almost every part of the State. Rock carvings are found in a few widely separated localities; rock paintings are sparsely distributed over a great part of the State; tree carvings are found principally in the western and northern parts; kitchen middens are found along the coast and along some of the rivers and estuaries; stone implements are widespread; ceremonial objects of stone (such as the cylindro-conical and cornute stones) are found principally in the western areas; burial grounds and cave shelters are widespread; and oven mounds are found near the Murrumbidgee, Lachlan and Murray Rivers. The list may be extended to include objects of bone, shell and wood. Stone quarries, fish traps and ceremonial sites, including heaps of stones, lines of stone and mounds of earth, have been found in several parts of the State.

In order to be effective, however, field work should be carried on under the guidance of the proper authorities. The Council urges field workers to collaborate with this Society or with one of the institutions devoted to anthropological research, such as the Department of Anthropology, Sydney University, or the Department of Anthropology, Australian Museum, Sydney. Unless field work is carried out with care and method, the scientific results may be disappointing. Such relics as burial sites and cave deposits should not in any circumstances be interfered with except under expert guidance.

We feel that in every respect the Society has had a most successful year. We had been hoping for a further expansion of our activities in the coming year, but we cannot yet foretell what effect the conditions brought about by the war will have on our Society. Whilst assuring members that the demands of the Empire during the war will be placed first and foremost, the Council will endeavour as far as possible to carry on the normal activities of the Society.

SOUTH AUSTRALIA:

The Field Impressions of an Ethnologist. *Summary of a lecture delivered before the Society by Dr. J. B. Birdsell on 24th July,* 1939.

Dr. J. B. Birdsell outlined his impressions formed during a widespread investigation into the physical anthropology of Australian mixed-blood and full-blood Aborigines. Accompanied by Mr. N. B. Tindale, he journeyed from Cape York to the south-west of Western Australia. The expedition covered 16,000 miles and examined 2,000 aborigines. The results of the expedition are not yet released for publication.

Changes in Papuan Social Life. *Summary of a lecture delivered before the Society by Rev. J. R. Andrew on 28th August,* 1939.

Mr. Andrew based his remarks on observations made during the twenty years he was stationed as a missionary in Papua.

He found it difficult sometimes for a missionary to obtain information which was often made readily available to an anthropologist. Although stationed at Misima, he had to cover a wide field, and the large number of languages spoken in the various islands was perplexing.

The mission in Misima was started in 1891, and about the same time the area was placed under government control and the system of indentured labour was established.

The first effort made by the mission was to educate the natives and teach them various crafts, and this led to many of the natives being detribalized to some extent and living apart from the other native groups. In Papua, a native artisan class was being built up and many natives had acquired quite a degree of manual skill. After his twenty years of mission work he outlined the changes which had occurred and which he had investigated at Misima.

There were still nine totem groups in this area. Some investigators recognized eight only, as the ninth was an offshoot of one of the others. The system of exogamous marriage was still recognized and had suffered hardly any alteration. The same applied to the Panieti area.

In Dobu, one of the Fergusson Islands, the totem groups were not so strictly recognized. The family group of relatives was rather wider than that which we recognize, and marriage was not so strictly exogamous, for two members of the same totem might marry if not in close relationship.

In Misima there were groups of hereditary enemies and there was little intercourse between them. There was also little intercourse between different language groups. The changes in marriage customs, therefore, had not differed greatly and the missionaries used their influence with the natives to prevent divorce on trivial grounds.

There had been a serious decline in the authority of the elders of the groups. This was more noticeable in Misima and the D'Entrecasteaux group, where the natives left the islands, but not in the Trobriands, as very few of these islanders left home.

Under the system of indentured labour, the young men left home for the mines or sugar plantations and were indentured for eighteen months and sometimes for three years, and returned with a changed outlook.

Twenty years ago the young men would work at the request of the elders and at that time the youth's uncle decided how the returned laborer's money and goods would be

distributed. Some now return and defy the authority of the elders and will not hand over their money and trade goods, but usually waste or spend the money on useless articles with the local trader. The majority of these young men find it difficult to fit in with the old native life. Communal life as previously existed is often neglected and these young men return to engagement under white men.

Polygamy is customary with the elders, who take two or three wives for two or three years, these being under the authority of the original wife. Sometimes the returned man considers he should have the same privilege, and if he can afford to do so he has a wife in other districts also.

Some boys of sixteen years of age have benefited greatly by the change, for they are well fed, have plenty of work in a good training ground, and are removed from the often evil influence of native custom. Under white discipline they show good physical development and are recognized as adults when they return.

A large proportion of the population of Misima has served as indentured labourers, for these men will work well underground in the mines, whereas the natives of the north-east coast cannot be induced to go below the surface.

The belief in sorcery and magic varies according to the believer's contact with the whites, but there is still a strong belief in sorcery. Even mission students still carry charms and still pay tribute to the belief in magic.

Garden sorcery has died out in Misima, but in the Trobriands it is still very strong as well as in Dobu.

Magic is sometimes in evidence in the fisheries, but not so pronounced as formerly. Sorcery is dying very hard and is a frequent source of dispute. Certain individuals are credited with the power to cause sickness and death by casting spells, and some quite capable workmen who have been in close touch with whites frequently believe that spells have been placed on them. This belief influences health to a great extent, but death is not so prevalent from this belief. The fear of evil spirits is not so much in evidence, but witchcraft and sorcery have not broken down to any great extent.

Feasts are still held on all sorts of occasions and very little change is noticeable. The greatest feast is that following the disposal of the bones of the dead, or a feast which celebrates the time when the memory of the departed one is forgotten. In the old days, the bodies of deceased natives were buried under houses to prevent the theft of skulls, which were highly prized. Now cemeteries have been provided and regular burials recognized in them. The ceremony of the final clearing of the bones and the disposal of them is the final tribute to the memory of those who have died, and is followed by great feasting. Large numbers of visitors arrive from outlying districts, and the feasts are on a much larger scale than in old days due to the breaking down of enmity between the natives.

Several green-stone implements were exhibited, among which there were some ceremonial hatchets and other tools from Woodlark Island. Voyages were still made in connection with the Kula Ring and blocks of green-stone were procured in exchange for shells and necklets.

Dances and feasts were increasing in the present phase of native life. Boys bring back new dances and an increasing interest is taken in these. Several native chants have been

set to music and hundreds of chants are sung in different dialects, some of which the lecturer chanted.

Hymns had been set to music and were popular.

Little change had taken place in house building but at Misima and Rossel Islands the houses were now worse than previously. This was due to an attempt to copy the white man's square built house, without any great success.

On the D'Entrecasteaux group, houses were a little better and on the Trobriands no change had taken place, for building material was difficult to obtain in that group.

At Panieti, boat building is still very active, with very little change in design and craftsmanship. Large canoes from 6 to 8 ft. high with the keel in one piece were frequently built and boarded up with four to five boards. They face the open sea very well.

The carving is not quite so good as formerly, although steel tools are now used.

The loin cloth is still used by the men and grass skirts by the women, fortunately with very little change.

Most men like to own a few tools for working and these are now mostly of steel.

Hurricane lamps are used in most houses for illumination and sometimes torches.

The same type of pottery cooking pots is still used.

New foods have been introduced such as sweet potatoes, maize, pawpaws and tomatoes. Manioc is grown on Misima and yams and taro are still grown to a large extent. Most of the preparation of the ground is done with a digging stick after burning off.

After a rotation of crops, the land becomes somewhat infertile, and it is left for ten to twenty years.

Gardening is declining due to so many men going away to the mines or sugar plantations and there is seldom any surplus food. The government is somewhat concerned about this, for a drought would be disastrous. The natives obtain rice and cereals and depend on this as a staple food.

In summing up, the lecturer stated that the building up of the artisan class in Papua was a large factor in the general improvement of the natives. Young boys often qualify for important posts, sometimes as police orderlies and other good working positions in contact with whites and natives.

There is always the opportunity for the young man to fit himself for higher duties, and large numbers are trained to take these responsible positions.

Recruiting has its good and bad phases but on the whole it is much better than the introduction of Asiatic labour.

The decline in agriculture is a very serious problem and the government is greatly exercised over this.

There is a slow decline in vital statistics and in some places it is difficult to get medical attention.

Kava and the Betel Nut. *Summary of a lecture delivered before the Society by Rev. A. Stanley Webb on 25th September,* 1939.

In 1916 the lecturer made his first trip through the islands of the New Hebrides as far north as the island of Isobel. He finally settled at Aoba.

For a time he stayed at the home of the head man in the island and noticed a peculiar plant growing in the garden but failed to identify it.

During the first few days he heard the sound of drums and on enquiry was advised that this indicated that kava drinking was in progress.

During his travel through the island and to other islands he noticed the same peculiar plant under cultivation. He now recognized this as the kava plant. When the mission supply vessel visited Aoba, he found a mixed crew aboard consisting of natives from Banks Island, Reef Islands and the Solomons. The crew of the vessel were anxious to get ashore, and when landed immediately searched for areca nuts, kava plant leaves and lime and immediately started chewing this mixture.

Large quantities were placed in the mouth and vigorously chewed and shortly after saliva stained a bright red colour flowed freely from the lips. There did not appear to be any other ill effects from the use of this narcotic except that the teeth turned quite black and became highly polished.

Later, visits were made to various islands of the Banks and Torres groups and he found kava drinking prevalent there. The men of Aoba had traces of Polynesian blood, but the majority of them were of the Melanesian type. At Reef Islands there was a marked change, for there the natives were distinctly Polynesian and a very good type of native was found on Tikopia. Here the teeth were black and shiny and the chewing of the nut quite universal.

In the Reef group and in all the other islands north to Isobel, chewing the areca nut was quite pronounced. It was not so much in evidence in the Solomons and nowhere in this vicinity was kava drunk.

There was a distinct line of demarcation between the use of the areca nut and kava drinking. This line was roughly north of Torres group and south of Tikopia. Kava to the south—areca nut chewing to the north.

In Fiji and Samoa kava drinking is attended with striking ceremonial observances. North and west of these groups the betel nut was chewed.

In most instances where the Polynesian mixed with the Melanesian type there was no kava drinking. At Santo Marie, kava drinking had been introduced but discontinued. The kava plant is a low growing bush with the stem and branches in sections, with a thick root, and from the root and branches the kava drink is prepared. The root is first washed, broken into pieces and chewed into shreds and finally made up into balls about the size of a tennis ball and placed to one side until sufficient is prepared for the number of men participating. A little fresh water is then poured over each ball in turn, which is absorbed as if by a sponge. This liquid is then squeezed out into a receptacle and repeated a few times until the whole mass is thoroughly washed and sufficient liquor obtained. In some of the islands the root is grated down with rough coral instead of by the method of chewing and apparently has the same effect.

Kava drinking apparently produces no exhilaration and first affects the legs with a sort of paralysis. The mind appears quite clear, but the addict cannot stand and usually makes preparation for a rest until the partial paralysis vanishes. Moderate drinking apparently has no ill effect but repeated indulgence is marked by bleared eyes, throat and speech affected, and slower mental activity.

The preparation by chewing is general throughout Polynesia and it is possible that in chewing no saliva is introduced into the shredded root for it is decidedly astringent and comes out of the mouth in a fairly dry condition.

At Aoba, coral is used to grate the root, which is then moistened with a little water, wrapped in coconut fibre and squeezed and strained through this. While wringing and squeezing the hands are lifted fairly high above the bowl and the liquor has quite a foam floating, and the best kava has quite a large amount of froth. Here also the preparation is quite a serious business and ceremonial ritual is introduced. Boys may be chosen to assist in the preparation and girls sometimes, but usually they do not participate in drinking.

The drink is prepared by groups of two, four or more men who usually drink together, and is quite a social affair for one man seldom drinks without company. The potency of the drink varies considerably according to the quality of the root and the amount of dilution.

Most gardens in the New Hebrides grow the kava plant, and one native of Aoba had a large plantation and traded with other natives.

The areca palm nut is not grown deliberately on Aoba for chewing purposes. Usually in chewing the nut is placed in the mouth, the betel leaf follows, and lime is added with a spatula. The lime boxes are made of bamboo and in some islands a gourd is used for the purpose of holding the lime. These containers are quite beautifully carved, as are the spatulas, and the specimens exhibited showed that native art had developed to a high degree in this particular class of work.

Several photographs were exhibited of coconut groves, groves of areca palms, native club houses and canoes, together with photographs showing the preparation of kava.

Adelaide-Harvard Universities, 1939 Expeditions. *Summary of a lecture delivered before the Society by Mr. N. B. Tindale on 23rd October*, 1939.

Mr. Tindale delivered a very interesting address upon some of the highlights of the 1939 Adelaide-Harvard Universities' Expedition. The talk was illustrated with photographs and lantern slides displaying the types of aborigines and hybrids encountered during the fourteen months the expedition journeyed through Australia.

Much work would be necessary before the final report of the expedition's findings could be submitted.

The work included the study of full bloods as well as half-castes. The principal aim of the expedition was the study of the factors governing inheritance of bodily form in human crosses. The party, consisting of Mr. J. B. Birdsell, representing Harvard University, and Mr. N. B. Tindale of Adelaide, with Mrs. Birdsell and Mrs. Tindale, travelled 16,700 miles by motor car and 600 miles by steamer and plane, the expenses being borne by the Carnegie Corporation of New York and the researches conducted under the joint auspices of the Department of Anthropology, Harvard University, and the University of Adelaide.

The method adopted was to tabulate and record the history of each person, and then to work through the individuals, family after family. Difficulty was sometimes experienced in securing data regarding illegitimacies, but when the purposes of the work were known the people proved to be helpful. An average of fourteen people was studied each day in order to ascertain this sociological and genealogical data, while Birdsell measured all subjects of whom an accurate ethnic assessment could be made from their family history.

The lecturer spoke of the effects of environment upon the natives and of attempts to assess the possibility of differences in mental ability. Tests were applied to nine hundred children of known racial constitution attending schools on aboriginal stations. Since the station environment was common to all, it is hoped to be able to demonstrate whether or not differences in type of intellectual response may occur. It was of interest to note the apparently greater adjustment to white life of F_1 men over F_2 individuals. They showed greater ability to adjust themselves even when reared in aboriginal communities. The meaning of this is at present obscure ; some light, however, may be thrown on it when the data on mixed-blood children have been analysed.

During the year a visit was made to Cape Barren Island, where some two hundred Tasmanian mixed-breeds live. Little of the Tasmanian culture survives ; a single song and a few words of one of the dialects are all that were garnered on the cultural side.

It was of interest to note that the bitterness of Captain Phillip Thomas, one of the principal F_1 Tasmanian hybrids, was one of the factors in preventing information about the Tasmanians being gathered in later years, for he deeply resented the treatment meted out to his mother's people.

Since very complete family records were obtained illustrating the development of the hybrid strain on these islands, the population data are likely to prove of exceptional interest, and the physical data may throw new light on the Tasmanians, their physical form and blood groups.

Implements of types belonging to the older Tasmanian series and similar to ones from Kangaroo Island and the Flinders Ranges were found, one on Cape Barren Island by Mrs. Birdsell, and two on Flinders Island by Mrs. Tindale. They are being described in a special paper along with other implement finds of equal importance.

A tribal map was shown with data of some two hundred Australian tribes whose boundaries had been defined from new and direct information. This will be published as part of the records of the expedition ; the data it contains are essential for the accurate plotting of the results of physical measurements. In addition, sociological frameworks were written down for approximately sixty tribes, some of them from areas in the eastern and southern coastal regions from which further data were previously thought to be unobtainable.

One hundred and ten phonetically transcribed parallel vocabularies will assist in the analysis of tribal affinities.

Various native legends and tests were secured.

A first example, in the form of a native play, based on the legend of the eagle and crow, is appearing in the forthcoming number of the *South Australian Museum Records*.

The Cohuna fossil-man site was visited in company with the original finder, and fossil *Unio* shells were found in the beds from which the cranium is stated to have come. This opens afresh the geological aspects of the problem of these remains. Fortunately, Dr. H. L. Shellshear has been allowed to make a complete study of the cranium, and it is hoped that all aspects of the problem will be examined. The possibility of a relationship between this type and the large crania described by Wunderly from western Tasmania should be considered. Other mineralized crania from Nacurrie and Swan Hill exhibit some features like those of Cohuna.

At Lake Menindie in western New South Wales another place was found which yielded mineralized human remains and implements on open sites and in beds from which sub-fossil animal bones including *Nototherium* and some gigantic kangaroo bones were also recovered. Joint researches with Birdsell will be undertaken on these specimens after the principal work of the expedition has been concluded.

Annual Meeting of the Anthropological Society of South Australia. *Summary of the proceedings of the annual meeting of the Society, 27th November,* 1939.

The annual meeting was held in the Refectory at the University of Adelaide. The following officers were elected for the year 1940: President, Mr. N. B. Tindale; Vice-President Dr. E. Couper Black; Committee, Dr. T. D. Campbell, Dr. P. R. Begg, Mr. C. P. Mountford, Professor T. Harvey Johnston, Professor F. Goldby; Librarian, Rev. N. H. Louwyck; Treasurer, Mr. E. V. Dix; Secretary, Mr. J. C. Leask, c.o. A.E.S. Co. Ltd., North Terrace, Adelaide.

Professor J. B. Cleland delivered a résumé of the Clive Lord Memorial Lecture, which he presented to the Royal Society of Tasmania early in November and which, no doubt, will appear in the proceedings of that body.

VICTORIA:

Annual Meeting of the Anthropological Society of Victoria, 1939. *Summary of the proceedings of the annual meeting of the Society, 30th August,* 1939.

The annual meeting of the Society was held at the Australasian College of Surgeons on 30th August, 1939. The Committee presented its annual report, which briefly reviewed the many activities of the Society. The annual balance sheet was also presented. Both reports were adopted. The following office-bearers were elected for the year 1939-40: President, Mr. D. A. Casey; Vice-Presidents, Messrs. H. R. Balfour and S. R. Mitchell; Hon. Secretary, Mr. A. A. Rosenblum; Hon. Treasurer, Mr. F. R. Mitchell; Auditor, Mr. A. C. Frostick. Messrs. Croll, Hyam, Lodewyck, Kenyon, Mahony, Smith and Wishart were elected to the Committee.

An amendment to the rules increasing the annual subscription to 7s. 6d., to cover the supply of MANKIND to all financial members, was unanimously adopted.

The Vegetable Foods of the Australian Aborigines. *Summary of a lecture delivered before the Society by Mr. G. N. Hyam on 30th August,* 1939.

The history of the rise or fall of any branch of the human race is largely a history of the abundance, variety or deficiency of food supplies. The aborigines are a nomadic people who did not bring with them or later develop any rudiments of agriculture or a technique of food storage against times of scarcity.

Coming to the specific foods of the aborigine, one is surprised by the wide range of both vegetable and animal food they selected. A completely balanced range of food was available, replete with all the alphabetical vitamins that are so much in the public eye to-day.

It is doubtful whether Australia had even nearly reached its maximum population on the basis of the food requirements of a nomadic race when the white man arrived.

The collecting and preparing of vegetable food were entirely the function of women. The plant foods in their order of preference as to use are seeds, seed-pods and nuts; fruits and berries, roots and pith, stems and flower stalks. These foods do not appear to have ever been placed under any form of taboo or restriction.

The presence of increase ceremonies in connection with plant seeds indicates that the aborigine was thoroughly familiar with the function of seeds and the plant life cycle generally.

The lecturer proceeded to describe the preparation of certain foods, and referred to the use of fermented liquors and *pituri* chewing. He concluded by asserting that the aborigines' diet, both vegetable and animal, was better balanced than our own.

The Spencer Hall of the National Museum, Victoria. *Summary of a lecture tour conducted by Mr. D. J. Mahony on behalf of the Society on October 11th, 1939.*

There was a large attendance of members to view the newly opened Spencer Hall of the National Museum. The modern and attractive layout of the museum display was greatly admired, as also was a number of admirably executed dioramas showing Australian Aboriginal scenes. It was unanimously agreed that the new display is a credit to the Museum, and will do much to encourage the public to think anthropologically.

REVIEWS

Anthropology and Religion. *By Peter H. Buck (Te Rangi Hiroa). Yale University Press, 1939, viii, 96 pp.*

Although Te Rangi Hiroa has given these lectures a disarmingly simple title, and although he has warned us in the preface that they deal only with the birth, growth and decay of Polynesian religion, the unsuspecting reader must be prepared for much more than he has been led to expect. He must be prepared for as neat and accurate a conspectus of Polynesian culture *in general* as he may find anywhere in the literature of anthropology.

In the first part of the book the author has described the socio-political nature of Polynesian society. We learn of the close connection between hereditary chieftainship, between the concepts of *mana* and *tapu* and the need of a link with the world of the supernatural. Dr. Buck shows how logical and how natural was the process of deifying the ancestors and creating human mediums through whom contact was established with the otherwise uncontrollable forces of good and evil. He traces the evolution of each division of the Polynesian pantheon with a sure hand and stresses the close relation between the spiritual power of a god and the temporal power of its worshippers.

One hesitates to agree altogether with Dr. Buck when he tries to distinguish a human offering from a human sacrifice (p. 26). The social value of a sacrifice, whatever the nature of the object sacrificed, depends entirely upon the attitude of the group making the sacrifice towards the deity to whom the sacrifice is made. One feels that acquiescence or absence of acquiescence on the part of the victim does not affect the ultimate social value of the sacrificial act.

In his second lecture, Dr. Buck indulges in the usual amount of pseudo-historical reconstruction of events which have unim-

peachable mythological foundation and produces for us a lively picture of the development of Polynesian theology and cosmology. The reviewer is inclined to support Dr. Buck when he suggests that those theories which connect the origin of the islands with their being fished up by the culture hero Maui, are but a metaphorical way of stressing the fact that the islands were discovered by man.

Right through this book Dr. Buck is at pains to show how strongly the religious pattern was influenced by the social pattern. "The dominant features of Polynesian society are the distribution and sharing of food and material goods and the budding off into family groups ruled by their own chiefs. The offerings of food and the division of power among a number of gods follow the human pattern. At the same time, there was a constant struggle for supreme power among the chiefs, and this struggle was reflected in the various island groups in the wars of the gods for supremacy."

The final lecture is a dramatic account of the collapse of the old religion of the Polynesians in the face of a new religion backed up by a superior material civilization. It describes how the Polynesians deserted their gods and sold them for a mess of pottage. And what a mess! For example, according to native law, polygamy was a valuable social institution which vitally affected the working of the kinship system. This was not so according to Christian law. The restriction to one god was accompanied by a restriction to one wife. In the native culture there was no connection between gods and wives.

Dr. Buck has painted a vivid picture of the cruel suppression of a native culture. He has shown how by attacking the religion of the Polynesians the whole superstructure of the society was made to collapse, and he asserts that "the death of the Christian gods would mean the collapse of the culture to which they belong, just as surely as the death of the Polynesian gods led to the end of Polynesian culture."

F. L. S. BELL.

CORRESPONDENCE, NOTES AND NEWS

Sir John Hubert Plunkett Murray, K.C.M.G., B.A.: An Appreciation.

The news of the passing of Sir John Hubert Plunkett Murray at Samarai on 27th February was received with a deep sense of loss by all who knew him and his work as Lieutenant-Governor of Papua for the past thirty-two years. In his seventy-ninth year, he died as he chose to die, in the course of his duties, which were his all-absorbing interest.

He was a member of a family of notable achievements, being the son of Sir Terence Aubrey Murray, President of the Legislative Council of New South Wales, and the brother of Sir Gilbert Murray, Regius Professor of Greek at the University of Oxford. His early training followed orthodox lines, and hardly indicated the future that lay before him. He was born in Sydney in 1861, was educated at Sydney Grammar School and the University of Oxford. On his return to Sydney, the legal profession claimed him. He practised in this city, was Crown Prosecutor, and acted as a District Court Judge. During the South African War he served as commanding officer of the New South Wales Irish Rifles, and returned with the rank of Major in the Imperial Army.

In 1904 he was given an opportunity of taking a position as Chief Judicial Officer in

Papua. The fascination of the task of sharing in the government of a primitive people made a strong appeal to him, and this intense interest in his chosen work he carried with him all his days. In the struggling colony of Papua he saw but a beginning, and deemed its hardships not insuperable. Before long his potentialities as an administrator were recognized, and in 1908 he was made Lieutenant-Governor. In 1912 he received the C.M.G., and in 1925 he was knighted.

In his presidential address to the Sydney meeting of the Australian and New Zealand Association for the Advancement of Science in 1932, entitled " The Scientific Aspect of the Pacification of Papua," may be found Sir Hubert's creed as administrator, an analysis of the problems confronted, and the manner in which he dealt with them. His was a great responsibility ; he shouldered it with humility, but also with a quiet, unwavering determination to act in accordance with the best of his knowledge and judgment, sparing neither himself nor his men. His reign, for the extent of his influence would render this term applicable, has been made the subject of both criticism and praise, yet, though hampered by economic exigencies, it is comparable with any in the world.

His system of administration was based upon that inaugurated by Sir William McGregor, which was devised with a thorough understanding of the essential requirements of the problem in hand. Not force of arms, but diplomacy and infinite patience, and carefully collected data were employed to penetrate the armour of native superstition and shake the natives' confidence in the time-honoured but disintegrating institutions of warfare and sorcery. It has often been said that Sir Hubert's chief weapon was ridicule. He well knew that to the native loss of " face " was the greatest of all social calamities. He used it to discredit the practice of black magic, knowing, however, that the deeply rooted traditional attitude towards the supernatural would die hard.

He strove to avoid abrupt changes in native life, but the lack of a well organized indigenous system of control compelled him, in the establishment of law and order and in the administration of justice, to resort to direct control. This meant an abandonment of the principle of indirect rule, in which the Papuan, with gradual enlightenment, may yet play an increasing part. A beginning has been made in the long established native police force or Royal Armed Constabulary, and in the enlistment of the assistance of native councillors. His degree of civilization determines the punishment of the native criminal. The peaceful penetration into uncivilized areas is almost complete, and the harmonious association between native and white for their mutual welfare has been achieved.

Sir Hubert deprecated his knowledge of science and anthropology, but, realizing that his work of governing a backward people must rest on a scientific basis, he turned to good account his powers of logic and his knowledge of human nature. He added to his staff an anthropologist who assisted in the recording and interpretation of native custom. His own interest in anthropology was strong, not so much as an academic study, but as a working guide for practical application. In this way his patronage of this Society was not the mere lending of a distinguished name. He has in his own sphere forwarded the objects for which it stands, and has indirectly contributed much to the science.

He was the author of two books, " Papua or British New Guinea " (1912) and " Papua of To-day " (1925). Yet it is his annual

reports that have perhaps won him greater fame. Pages that one might have expected to be a dry-as-dust series of summaries and statistics are, under the inspiration of a brilliant mind, brightened by a ready wit, and, despite their brevity, may be read with interest and profit by the man in the street.

Sir Hubert's personality endeared him to those who knew him. He showed a keen understanding and quick sympathy, was singularly modest, and had a strong dislike of pomp and circumstance, while a quiet humour and imperturbable mien marked his utterances. The simple dignity of his living was at one with the simplicity of his purpose—the welfare of Papua. The natives more than once expressed their loyalty and affection for him, and begged him never to leave them, " for we know that you love us well, and we are full of love for you, our governor."

In paying homage to Sir Hubert Murray, we are paying tribute, too, to those who worked with him, and who also have gone the way of all men. He himself spoke with deep feeling of the sterling service carried out by the men who knew Papua and its natives prior to his coming. The spirit of service, he said, was as strong as ever to-day, and was maintained by officers whose work was arduous and reward but meagre. It has been truly said that his death was more than the passing of one man, it was not the turning of a page nor even the last of a chapter, but the end of a long book.

ELSIE BRAMELL,
M.A., Dip.Ed.

Victorian Activities.

Recent investigations by Mr. S. R. Mitchell and others have added a number of interesting aboriginal sites to those already known in Victoria.

On the Bellarine Peninsula, coastal sites have been investigated at Indented Head, Point Lonsdale and elsewhere, and excellent collections of small artefacts have been obtained. These discoveries have assumed a certain " publicity value " owing to the historical connection of Indented Head with the story of William Buckley, " the wild white man " who escaped from Collins' Settlement in 1803 and was found here by the first settlers in 1834. The Melbourne Press made some interesting, if amusingly inaccurate, observations in this connection.

Other work of interest has been accomplished on the Buffalo Plateau, one of the favourite resorts of the Boyong moth. Evidence of the popularity of the moth as a delicacy among the aborigines is provided by the extensive collections which have been obtained at certain sites (The Horn, Cathedral Rocks, etc.), where the moths are still prolific.

The Anthropological Society of Victoria recently circularized all municipal bodies and similar organizations in the State in an effort to encourage the use of aboriginal names.

The town of Shepparton has already agreed to rename upwards of thirty streets, using local aboriginal names, whilst about a dozen other town and shire councils are moving in the matter. It is hoped that many names will be preserved in this way.

The Victorian Anthropological Exhibition.

The Anthropological Exhibition, staged by the Society at Garden City at the end of October, proved an unqualified success. A full range of Australian, New Guinea, New Zealand and Pacific Islands material was displayed in cases or on the walls. Exhibits were received not only from our local members, but from the Department of the Interior and the Prime Minister's Department, Canberra, the University of Sydney

and the Australian National Research Council, Sydney, and from individuals and bodies in New Zealand, central Australia, South Australia and New South Wales. To all these the thanks of the Society are conveyed.

During the period of the Exhibition, to which admission was free, approximately eight thousand visitors attended.

Much interest was shown in a series of murals prepared by the Art Department of the Melbourne Technical School, which is at present developing a purely Australian school of modern art, based upon aboriginal motifs and designs. As an exhibition of modern art was showing in Melbourne at the same time, it was interesting to note the high praise bestowed upon this new Australian experiment.

It has been decided to repeat the Exhibition in Melbourne, possibly in the spring of this year.

Member on Active Service.

Lieut.-Col. E. O. Milne, D.S.O., V.D., M.Inst.T., a foundation member of the New South Wales Society, was sent abroad on active service with the advance party to prepare for the arrival of the Australian Imperial Forces in Palestine. Lieut.-Col. Milne has been elected an honorary member of the Society during the period of his service overseas.

Rock Carving near Woodford, N.S.W.

Sir,

A rock carving of unusual interest has been located near Woodford, in the Blue Mountains, N.S.W., by Mr. C. G. Kilpatrick and Mr. N. A. Colton. It consists of four concentric circles, the diameter of the outer circle being eighteen inches. Circles are frequently found carved in the rocks in the Sydney-Hawkesbury districts, but concentric circles have not been previously observed.

The locality where the carving is situated is on top of a high and precipitous ridge overlooking Erskine Creek. The carving is on a rock sloping at 45 degrees towards the northwards. On the same rock there are many axe-grinding grooves. Some stone flakes have been collected in the vicinity. In this area several other rock carvings have been located by the same two gentlemen.

C. C. TOWLE.

Corrigenda.

Two mistakes have crept into a report of the meeting of the Anthropological Society of South Australia on 3rd July, 1939 (MANKIND, Vol. 2, p. 232, etc.).

Page 232, line 14 is misleading without amplification. The infant's skull from Devon Downs Rock-shelter referred to was found at the 6 ft. level in layer III and is the example figured by Hale and Tindale in *Records of the South Australian Museum*, IV, 1930, p. 180. Other human remains were found in association with bones of the Tasmanian Devil in layer VI at a depth of 12 ft., while occupational debris extended down to 21 ft. below the crest of the rock-shelter deposits.

On p. 232, line 7, the skull fragment referred to is from Paniri Creek, Aitape, New Guinea. It was first mentioned in the official reports of the Geological Survey of New Guinea, and will be fully described by C. Fenner in a forthcoming paper.